ABSTRACT OF THE DISCLOSURE

        A serial data stream is mapped through a cross-connect via two or more parallel independent shelves. The serial data stream is split into at least two sub-streams. If the lead frame of a sub-stream contains a concatenation indicator, it is replacing by a valid payload pointer, and a split indicator is inserted into the frame. Each of the sub-streams is then mapped through the cross-connect via a respective parallel independent shelf. Finally, the sub-streams are recombined to form an output serial data stream equivalent to the original serial data stream. If the lead frame of a sub-stream contains a split indicator, a concatenation indicator is inserted into the corresponding frame of the output serial data stream to restore the concatenation of the original serial data stream. Otherwise, a payload pointer within the lead frame is replaced by a valid payload pointer in the corresponding frame of the output data stream.